

JOHN MORRISON.

Improvement in Furnaces for Heating and Puddling Iron, Etc.

No. 123,282.

Patented Jan. 30, 1872.

FIG. 1.

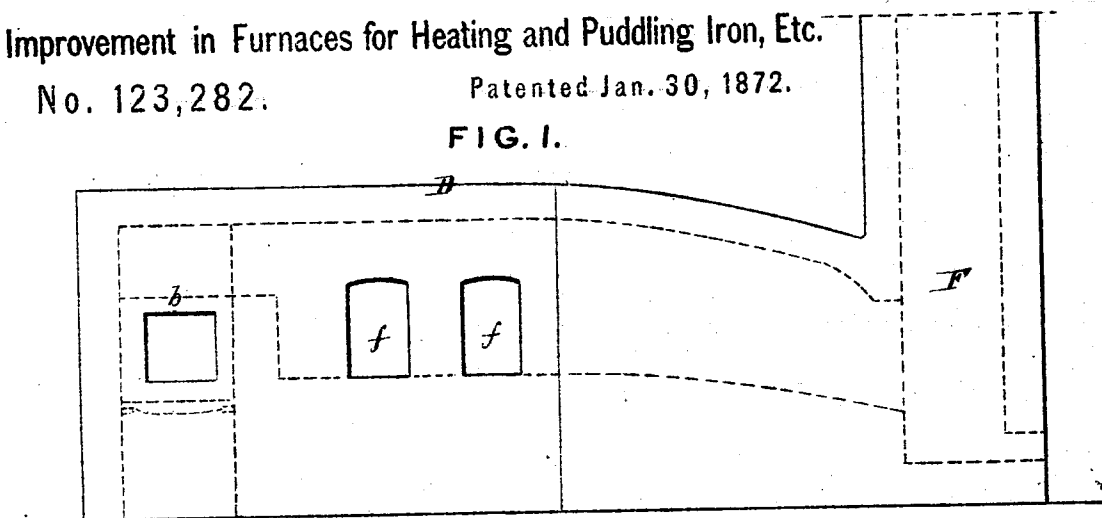


FIG. 2.

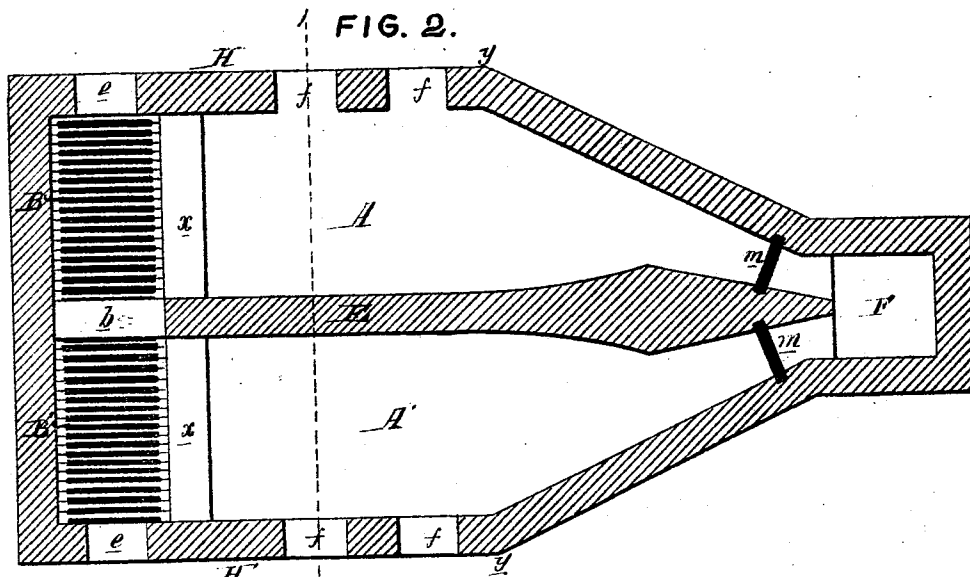
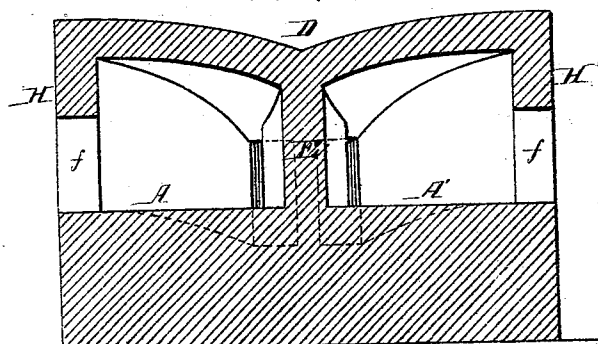


FIG. 3.



Witnesses { *Thos McPherson*
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UNITED STATES PATENT OFFICE

JOHN MORRISON, OF EAST ST. LOUIS, ILLINOIS.

IMPROVEMENT IN FURNACES FOR HEATING AND PUDDLING IRON, &c.

Specification forming part of Letters Patent No. 123,282, dated January 30, 1872.

Specification describing an Improved Duplex Heating-Furnace, invented by JOHN MORRISON, of East St. Louis, St. Clair county, Illinois.

My invention consists of a duplex heating-furnace, constructed in a manner too fully explained hereafter to need preliminary description, with a view of directing the flame into either furnace, and with a further view of economy in construction and the permanency of the chimney or chimneys.

In the drawing, Figure 1 is a side view of my improved duplex heating-furnace; Fig. 2, a sectional plan of the same; Fig. 3, a vertical section on the line 3 4, Fig. 1.

My improved furnace has two beds, A and A', separated from each other by a partition-wall, E, which extends vertically to the roof D of the furnace and longitudinally from the front of the bridge-walls *x* to the chimney F. The opposite side walls H and H' of the furnace are straight and parallel with each other from the front to the points *y*, from whence they converge toward the chimney, as shown in Fig. 2. B and B' are two fire-places, separated from each other by a wall, *b*, which may be of the same height as the bridge-walls *x x*, each fire-place having an opening, *e*, through which fuel is introduced. In each side wall H and H' of the furnace are openings *f f* for the introduction of the iron.

It will be seen that there are, in fact, two separate furnaces, each having its own fire-place; but both fire-places can be made to communicate with either of the furnaces by the adjustment of the dampers, each furnace being provided with a damper, *m*, situated at or near the point where it meets the chimney F. When both dampers are open to the same extent the flames from the fire-places will pass through their respective furnaces; but should one of the furnaces—that marked A, for instance—become somewhat cool while the other has an excess of heat, then the damper *m* of the furnace A' is closed, and the flames from both fire-places will pass through the furnace A, to which is soon imparted the desired heat. The heat can thus by the simple adjustment of the dampers be distributed to each furnace, as cir-

cumstances may require. My improved duplex furnace, in addition to the advantage last mentioned, is much more economical than two separate furnaces of the same capacity, for the iron plates and ties required for binding the wall of the duplex furnace are not much more numerous or weighty than those required for a single heating-furnace. Another advantage of my invention is the placing of the dampers at the necks of the furnaces, where they communicate with the chimney.

Heretofore the dampers of heating-furnaces have been situated at the tops of the chimneys, in consequence of which the heat has been retained therein when the dampers are closed, and this intense heat has a rapid deteriorating effect on the chimneys. By placing the dampers at the necks of the furnaces not only can the heat be retained within the same when the dampers are closed, but the chimney, being always open at the top, is not subjected to such intense and destructive heat as when it is closed at the top by a damper.

If desired, the partition-wall *b* of the fire-places can be dispensed with and one continuous fire-place used for the two furnaces. Although I prefer, on the score of economy, that both fire-places should communicate with one chimney, it will be evident that two separate chimneys could be employed, or one chimney divided by a partition, without departing from my invention, provided that the same arrangement of dampers *m* was retained.

I claim as my invention—

1. Two heating-furnaces combined, substantially in the manner described, with two fire-places communicating with each other, or one continuous fire-place, for the purpose specified.

2. The combination of the duplex furnace and its fire-place or fire-places with two dampers situated at the necks of the furnace, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN MORRISON.

Witnesses:

THOS. H. HUTCHINS,
MARTIN WESTPHAL.